



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/550,013

04/04/2006

Rudolf Fahrig

P28506

8056

7055 7590 03/18/2008  
GREENBLUM & BERNSTEIN, P.L.C.  
1950 ROLAND CLARKE PLACE  
RESTON, VA 20191

EXAMINER

HENRY, MICHAEL C

ART UNIT

PAPER NUMBER

1623

NOTIFICATION DATE

DELIVERY MODE

03/18/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/550,013	<b>Applicant(s)</b> FAHRIG ET AL.	
	<b>Examiner</b> MICHAEL C. HENRY	<b>Art Unit</b> 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-12, 16 and 17 is/are rejected.
- 7) ☒ Claim(s) 13-15 and 18-26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

The following office action is a responsive to the Amendment filed, 11/26/07.

The amendment filed 11/26/07 affects the application, 10/550013 as follows:

1. Claims 8-10 been amended.
2. The responsive to applicants' arguments is contained herein below.

Claims 8-26 are pending in application

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-12, 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fahrigh et al. (WO 96/23506, English Translation).

In claim 8, applicant claims a method of increasing apoptotic effect of cytostatics after chemotherapy comprising administering a 5-substituted nucleoside comprising (E)-5-(2-bromovinyl)-2'-deoxyuridine (BVDU), a protected form, salt, prodrug or mixture thereof, the administering being without administration of a cytostatic, during a recovery phase after a cytostatic chemotherapy cycle. Claim 9 is drawn to said method wherein the administration includes cytostatic and a 5-substituted nucleoside comprising BVDU, a protected form, salt prodrug, or mixture thereof. Claims 10-12, 16, 17 are drawn to said method involving the administration of specific amounts of cytostatic and BVDU, specific recovery phase and

Art Unit: 1623

chemotherapy cycle, and specific concentration of 5-substituted nucleoside in the blood and specific cytostatics.

Fahrig et al. disclose that 5'substituted nucleosides in combination with at least one cytostatic can be used in the production of a medicament to prevent or reduce the build-up of resistance in cytostatic treatment and a medicament containing BVDU and/or its metabolites (see abstract). It should be noted that the apoptotic effect encompasses the cytostatic treatment disclosed by Fahrig et al. Furthermore, Fahrig et al. disclose that BVDU alone appears slightly to lessen the spontaneous degree of gene amplification (see page 10- line 24 to page 11, line 3). In addition, Fahrig et al. disclose that BVDU, in clinically relevant doses, inhibits AMP-induced gene amplification and that the said inhibition is dose dependent (see page 10- line 24 to page 11, line 3). This implies that BVDU has the effect of preventing or reducing the build-up of resistance resulting from cytostatic treatment.

The difference between applicant's claimed method and the method suggested by Fahrig et al. is that Fahrig et al. do not disclose administering said BVDU during the recovery phase after a cytostatic chemotherapy cycle. However, Fahrig et al. suggest that BVDU can cause the apoptotic effect of the cytostatic to be more effective (i.e., increased) due to the build-up of resistance in cytostatic treatment. This implies that BVDU has the effect of preventing or reducing the build-up of resistance resulting from cytostatic treatment. Consequently, a skilled artisan would be motivated to administer BVDU alone to reduce the build-up of resistance resulting from cytostatic treatment and to exclude the administration of more cytostatic which may cause side effects or adverse effects and to optimize or maximize the effectiveness of said cytostatic especially during a recovery phase after a cytostatic chemotherapy cycle.

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made in view of Fahrigr et al., to increase apoptotic effect of cytostatics after chemotherapy comprising administering said BVDU, during a recovery phase after a cytostatic chemotherapy cycle based on factors such as the severity of the build-up of resistance due to the cytostatic treatment (especially after chemotherapy cycle), the side effects or adverse effects of excess cytostatics build up, the maximum tolerant dose of the cytostatic and the type of individual treated, since Fahrigr et al. disclose that BVDU and/or its metabolites can reduce the build-up of resistance in cytostatic treatment.

One having ordinary skill in the art would have been motivated, in view of Fahrigr et al. to increase apoptotic effect of cytostatics after chemotherapy comprising administering said BVDU, during a recovery phase after a cytostatic chemotherapy cycle based on factors such as the severity of the build-up of resistance in cytostatic treatment (especially after chemotherapy cycle), the side effects or adverse effects of excess cytostatics, the tolerant dose of the cytostatic and the type of individual treated, since Fahrigr et al. disclose that BVDU and/or its metabolites can reduce the build-up of resistance in cytostatic treatment. It should be note that the use of specific ratios of drugs, agents or cytostatics and frequency of administration depends on factors such as the type and severity of the condition treated and the kind of subject treated.

***Allowable Subject Matter***

Claims 13-15, 18-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The method of claims 13-15, 18-26 possess differences to the method of prior art documents and these differences are not suggested in the prior art, nor are

Art Unit: 1623

obvious over the prior art. For example, the method of claims uses compounds that are different to the compounds of prior art.

### ***Response to Arguments***

Applicant's arguments with respect to claims 8-12, 16, 17 have been considered but are not found convincing.

The applicant argues that Fahrig Abstract actually teaches away from the present invention. This is so because the Fahrig Abstract only discloses the *combination* of a 5' substituted nucleoside and a cytostatic. On the contrary however, the Fahrig Abstract does not teach away from the present invention. First, Fahrig et al. disclose a medicament containing BVDU and/or its metabolites and suggest that BVDU can cause the apoptotic effect of the cytostatic to be more effective (i.e., increased) due to the build-up of resistance in cytostatic treatment. Furthermore, Fahrig et al. disclose that BVDU alone appears slightly to lessen the spontaneous degree of amplification (see page 10- line 24 to page 11, line 3).

The applicant argues that WO 96/23506 discloses to those of skill in the art (that administration of a 5' substituted nucleoside during a recovery phase would be ineffective. On the contrary however, based on the teaching of WO 96/23506 those of skill in the art would expect the administration of 5'substituted nucleoside during a recovery phase would be effective in that it would further facilitate the incorporation of cytostatics into the cells depending factors such as on the amount of cytostatic that is built up during the recovery phase after a cytostatic chemotherapy cycle and the rate at which said cytostatic is incorporated into the cells.

The applicant argues that it would appear that one of skill in the art would expect the 5' substituted nucleoside to be effective only when it is present simultaneously with the cytotoxic

Art Unit: 1623

agent. On the contrary however, Fahrigr et al. disclose that BVDU alone appears slightly to lessen the spontaneous degree of gene amplification (see page 10- line 24 to page 11, line 3). In addition, Fahrigr et al. disclose that BVDU, in clinically relevant doses, inhibits AMP-induced gene amplification and that the said inhibition is dose dependent (see page 10- line 24 to page 11, line 3). This suggests that BVDU when used alone also can prevent or reduce the build-up of resistance resulting from cytostatic treatment.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Henry whose telephone number is 571-272-0652. The examiner can normally be reached on 8.30am-5pm; Mon-Fri. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael C. Henry

/Shaojia Anna Jiang/ Ph.D.  
Supervisory Patent Examiner, Art Unit 1623  
March 3, 2008.